U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Queen Street VOC - Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region III

Subject: **POLREP #3**
Removal Site Evaluation
Queen Street VOC
A3YJ
Martinsburg, WV
Latitude: 39.4709920 Longitude: -77.9543280

To: Burns Fran, US EPA R3
Response Center RRC, EPA
Response Center RRC, EPA
Tracy Jeffries, WVDEP

From: Michael Towle, On-Scene Coordinator
Date: 3/1/2016
Reporting Period: November 21, 2015 to March 1, 2016

1. Introduction

1.1 Background

Site Number:	A3YJ	**Contract Number:**	
D.O. Number:		**Action Memo Date:**	
Response Authority:	CERCLA	**Response Type:**	Time-Critical
Response Lead:	EPA	**Incident Category:**	Removal Assessment
NPL Status:	Non NPL	**Operable Unit:**	
Mobilization Date:	12/2/2014	**Start Date:**	11/9/2014
Demob Date:		**Completion Date:**	
CERCLIS ID:		**RCRIS ID:**	
ERNS No.:		**State Notification:**	
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category

This Site relates to a suspected release of chlorinated organic contamination in the area of a public drinking water supply.

1.1.2 Site Description

The Site is near the location of a former leaking underground storage tank at a fuel station. After remediation of the leaking tank and following investigation, chlorinated organic (i.e., tetrachloroethylene) contamination was found in soil gas (ground water was not contemporaneously analyzed for the same contamination). The State of West Virginia requested EPA assistance in determining the source and

extent of contamination since contamination in the vicinity of the Site would likely affect a public drinking water supply.

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1.1.2.1 Location

The Site is near the corner of North Queen Street and Lambert Street (now Cloud St.) in Martinsburg, Berkeley Co., WV.

1.1.2.2 Description of Threat

The Queen Street VOC site (Site) is an unknown source of possible chlorinated volatile organic compound (VOC) contamination suspected to be located near the intersection of North Queen Street and Lambert Street (currently named as Cloud Street), in Martinsburg, WV. The Site was discovered during the course of a Leaking Underground Storage Tank (LUST) investigation (LUST No. 98-034) at a gasoline station located near the intersection of North Queen Street and Lambert Street. The Site is located in a commercial area which includes a gasoline station/convenience store and retail strip mall to the north; a vacant grass lot and vacant business to the east; a restaurant to the south; and a farm supply store to the west across North Queen Street. It is suspected that tetrachlorethylene (PCE) may be migrating to the ground water (from an unknown source) and threatening public drinking water supply.

At this time, only low levels of contamination have been identified.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

Two 12,000-gallon underground storage tanks (UST), originally installed in 1964, were removed and replaced with new upgraded USTs at a nearby gasoline station in 1998. Petroleum contamination and perched water were encountered during the UST removal process. Approximately 674 tons of contaminated soil and 7,000 gallons of water were removed during cleanup activities. As a result, a State regulatory investigation was initiated under WV Leaking UST No. 98-034. Investigative activities related to the LUST included removal of identified subsurface soil and groundwater contamination consisting of petroleum hydrocarbons, including gasoline range organics (GRO), benzene, toluene, ethylbenzene, xylenes (BTEX), and methyl tert-butyl ether (MTBE). Additionally, analysis of soil gas samples indicated the presence of tetrachloroethene (a.k.a., PCE) in two of three soil gas samples in addition to the common gasoline-related constituents. PCE, which is not a gasoline-related constituent, was detected in soil gas samples collected in front of the Site building at concentrations as high as 3,700 parts per billion volume (ppbv) (approximately 546 micrograms per cubic meter [$\mu g/m^3$]). Groundwater samples collected as part of the investigation had only been analyzed for gasoline-related constituents and had not been analyzed for PCE or other chlorinated solvents. The report prepared for the investigation indicated that groundwater at the Site flows generally to the west, northwest.

The Site is located in a Wellhead Protection Area. A Water Plant is located approximately 0.75 mile southwest of the Site and a public water source is located approximately 1.5 miles west of the Site.

Surface runoff from the area drains to the northwest, west, and southwest. A grass-covered storm water swale is located approximately 200 feet (ft.) west of the Site, across North Queen Street. The swale drains westward to a drain pipe that extends under the farm supply store parking area, and is believed to eventually empty into Dry Run at a location approximately 1,000 ft. southwest of the Site.

Previous investigations in the area have reported that bedrock is encountered at depths ranging from 5 to 12 ft. below ground surface (bgs). Boring logs for boreholes made during installation of monitoring wells (MWs) in 2010 depict void spaces at 11 to 12 ft. bgs (in MW-11) and at 10 to 14 ft. bgs (in MW-13). The boring log for another monitoring well (MW-12) indicated the presence of multiple clay-filled voids from near the surface to 29 ft. bgs. Depths to groundwater were reported to range between 7 and 20 ft. below tops of casings in the monitoring wells. Groundwater flow direction was reported as generally to the northwest. Consultants for the property owner surmised that contaminated groundwater from the Site had migrated off site through fractures in the bedrock.

In November 2014 EPA initiated a removal site evaluation at the Site focusing on sampling of some of the existing ground water monitoring wells for VOCs. Validated analytical results indicated low level detections of several gasoline-related VOC constituents and other contaminants. However, no detection of Tetrachloroethylene was found in the ground water.

See POLREPs 01 and 02.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

See POLREPs 01 and 02 for activity prior to the recent (December 2015) sampling event.

EPA began planning for additional sampling at the Site in November 2015. EPA planned to attempt to access and collect groundwater samples from some of the existing wells that were not accessible during the first sampling event conducted in December 2014. These wells were not sampled because a specialized tool was required to remove the well covers. Additionally, EPA planned to collect soil gas samples from existing soil gas wells and from a grass-covered area located between the convenience store building and the adjacent property to the north.

During a Site reconnaissance conducted on November 13, 2015, EPA START attempted to access wells that could not be accessed during the December 2014 sampling event. A specialized tool was purchased to enable START to access the wells. START was able to gain access to monitoring well MW-1, which is located near soil gas well SG-3; however, the well cover bolt was broken in the process due to the poor condition of the well cover assembly. The other previously inaccessible wells could not be accessed without risk of shearing the bolts on the covers. EPA decided that MW-1 and two of the wells sampled during the previous sampling event (MW-2 and MW-13) would be sampled in the next sampling event.

After developing a sampling plan, obtaining access to the property, and procuring laboratory space, an onsite sampling event was conducted in December 2015.

2.1.2 Response Actions to Date (since the 2014 sample event)

A. The EPA START contractor conducted the groundwater sampling on December 10, 2015. Traditional three-well-volume purge sampling was conducted using a Monsoon submersible pump, controller, and polytetrafluoroethylene (PTFE)-lined tubing. After purging the required three well volumes from each well, the flow rate was reduced to approximate low-flow sampling rates (less than 0.5 liter per minute) to collect the samples. Groundwater samples were collected from existing wells MW-1, MW-2, and MW-13. The groundwater samples were preserved with hydrochloric acid and shipped to a Contract Laboratory Program (CLP) laboratory scheduled through the EPA CST. The groundwater samples were analyzed for Trace Volatile Organics Analysis (TVOA) under CLP Statement of Work (SOW) SOM02.3.

B. The soil gas sampling was also conducted on December 10, 2015. Certified-clean summa canisters and flow controllers (45-minute time period for sample collection) were used to collect all soil gas samples. A shut-in test and a leak test were performed prior to collecting the sample at existing soil gas well SG-3. Test results indicated that there were no leaks in the sampling train. The sample tubing was then attached to the flow controller/summa canister with a Swagelock® fitting and sample collection was initiated. Sample collection was ended after approximately 45 minutes by securing the summa canister valve after the vacuum pressure on the canister dropped to between -5 to -10 pounds per square inch (PSI) mercury (Hg). The sample was designated as SG03. START attempted to collect a soil gas sample from soil gas well SG-2. However, when conducting the leak test of SG-2, water was drawn from the well, indicating that the sampling zone was saturated. Therefore, a soil gas sample could not be collected from SG-2.

C. EPA START also collected three soil gas samples using dedicated soil gas/vapor implant tips (soil gas implants) and Teflon®-lined tubing. These samples, designated SV01, SV02, and SV03, were collected from the unpaved, grass-covered area between the convenience store building and the strip mall located on the northern boundary of the Site. Site background reports indicated that a diesel fuel tank was formerly located in this area. The soil gas implants and attached tubing were driven to depths

of approximately 2.5 to 3 feet below ground surface (bgs) using a slam bar. The drive rod was then pulled upward while holding the tubing in place to allow the soil gas implant to be deployed in the soil outside the coring tube. The annulus of the borehole around the coring tube was sealed using modeling clay. The sample tubing was then connected to a certified-clean 6-liter summa canister equipped with a 45-minute flow controller, for which a shut-in test had been successfully completed, and sample collection was initiated. The sampling was ended/completed by securing the summa valve when the summa vacuum pressure dropped to between -5 to -10 PSI Hg. The summa canister samples were shipped to the EPA Region III OASQA Laboratory on December 11, 2015 to be analyzed for VOCs using EPA Method TO-15.

D. Validated analytical results for the groundwater samples were received on February 4, 2016. The data indicated the presence of low concentrations of petroleum/gasoline-related constituents in two of the three ground water wells sampled and detection of PCE at a trace level in one well. Results for MW-1 indicated the presence of MTBE at a concentration of 0.76 µg/L and also PCE at a concentration of 0.15 J µg/L, which is below the Contract Required Quantitation Limit (CRQL) of 0.5 µg/L. Monitoring well MW-2 had the following VOCs detected: MTBE – 2.5 µg/L; benzene – 26 µg/L; cyclohexane – 2.9 µg/L; methylcyclohexane – 1.2 µg/L; toluene – 8.1 µg/L; ethylbenzene – 0.5 µg/L; o-xylene – 1.8 µg/L; m,p-xylene – 2.4 µg/L; and isopropylbenzene – 0.97 µg/L. All the compounds detected in MW-2 were common petroleum/gasoline constituents. The results for MW-13 were non-detect for all VOC analytes. The only exceedance of a Maximum Contaminant Level (MCL) for drinking water or a West Virginia (WV) De Minimis concentration for groundwater was for benzene detected in MW-2, which exceeded both the MCL and the WV De Minimus concentrations of 5 µg/L.

E. Final analytical results for soil gas samples were received on January 15, 2016. Results for well SG-3 indicated the presence of low concentrations of several gasoline-related constituents and PCE. The highest concentration detection was for PCE at 456 µg/m^3. Trace-level gasoline constituents detected included: o-xylene at 1.4 µg/m^3; m,p-xylene at 3.5 µg/m^3; toluene at 4.9 µg/m^3; and 1,2,4-trimethylbenzene at 1.6 µg/m^3. Trace levels of refrigerant compounds dichlorodifluoromethane (2.3 µg/m^3) and trichlorofluoromethane (1.4 µg/m^3) and common laboratory contaminants/solvents acetone (3.3 µg/m^3) and 2-butanone (0.8 J µg/m^3) were also detected in SG-3.

F. Analytical results for soil gas samples collected from the temporary implants indicated the presence of trace levels of PCE in the two sample locations nearest the northern property boundary (SV-02 and SV-03). SV-02 and SV-03 had PCE detected at concentrations of 1.6 µg/m^3 and 1.4 µg/m^3, respectively. PCE was not detected in SV-01, which was located near the convenience store building. Trace levels of gasoline constituents, solvents, and refrigerant compounds were also detected in one or more of the samples. Acetone, a common laboratory contaminant, was the highest concentration contaminant detected in all three samples with concentrations of 6.6 µg/m^3 in SV-01, 13.2 µg/m^3 in SV-02, and 14.1 µg/m^3 in SV-03.

G. The primary objectives of this investigation were to determine if groundwater had been impacted by non-petroleum related contaminants, such as PCE and its breakdown products, and to determine if a contaminant source area was present in subsurface soil. Analytical results for this sampling event confirmed the presence of a low level of PCE in soil gas well SG-3 at a concentration of 456 L µg/m^3. This was somewhat lower than the highest PCE concentration reported in a soil gas sample collected from SG-3 in 2012 by contractors for the property owner (3,700 ppbv/546 µg/m^3). PCE was only detected at trace levels in two of the three soil gas samples collected from temporary implants located near the northern property boundary (1.6 J and 1.4 J µg/m^3 in SV02 and SV03, respectively). PCE was only detected at a trace level in one of the three groundwater monitoring well samples, MW-1, at a concentration of 0.15 J µg/L. MW-1 is located near soil gas well SG-3. This result was below the CRQL of 0.5 µg/L and well below the 5 µg/L MCL and WV De Minimus concentration. PCE was not detected in any other groundwater sample for this event nor the December 2014 EPA sampling event. The only contaminant detected at a concentration that exceeded an MCL or WV DeMinimus concentration was benzene, a gasoline-related contaminant, at a concentration of 26 µg/L.

Based on the analytical results for groundwater samples collected during this sampling event and the previous EPA sampling event (December 2014), it appears that PCE has migrated into the groundwater but only at a trace level with a limited horizontal extent of migration. Analytical results for soil gas

samples collected as part of this investigation indicate the presence of low level PCE contamination in soil at or near SG-3. Only trace levels of PCE were detected in other soil gas sampling locations.

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

There is no activity to identify a PRP since the owner of the property is known.

2.1.4 Progress Metrics

Waste Stream	*Medium*	*Quantity*	*Manifest #*	*Treatment*	*Disposal*

2.2 Planning Section

2.2.1 Anticipated Activities

Coordinate with the State of West Virginia regarding the results of the removal site evaluation and conclusion of the removal site evaluation.

2.2.1.1 Planned Response Activities

None.

2.2.1.2 Next Steps

Coordinate with the State and conclude the removal site evaluation**.**

2.2.2 Issues

The analytical results do not indicate that PCE contamination has migrated at levels of concern for EPA Removal program.

2.3 Logistics Section

No information available at this time.

2.4 Finance Section

2.4.1 Narrative

The work is conducted under the START contract (Techlaw, Inc.) under 2 separate TDDs:

1) 14-10-001 (closed)

2) 15-10-004

Estimated Costs *

	Budgeted	Total To Date	Remaining	% Remaining
Extramural Costs				

TAT/START	$43,283.90	$26,786.90	$16,497.00	38.11%
Intramural Costs				
Total Site Costs	$43,283.90	$26,786.90	$16,497.00	38.11%

* The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The OSC does not necessarily receive specific figures on final payments made to any contractor(s). Other financial data which the OSC must rely upon may not be entirely up-to-date. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

2.5 Other Command Staff

No information available at this time.

3. Participating Entities

No information available at this time.

4. Personnel On Site

No information available at this time.

5. Definition of Terms

No information available at this time.

6. Additional sources of information

No information available at this time.

7. Situational Reference Materials

No information available at this time.